

Customer No.: 31561
Application No.: 10/064,208
Docket No.: 8309-US-PA

REMARKS

I. Present Status of the Application

The Office Action objected claims 17-30 under 35 U.S.C. § 103(a) as being unpatentable over either one of Ulland et al. (US 2002/0192569) or Chan (US 2003/0084422). After entry of the above amendments, claim 30 is amended and claims 31-41 are added, and thus claims 17-41 are pending in the present application, with claims 17 and 30 being independent claims. Applicant believes that these changes do not introduce new matter and reconsideration of those claims is respectfully requested.

II. Response to Rejections under 35 U.S.C. § 103(a) over either one of Ulland et al. or Chan

The Office Action, at pages 2-3, rejected claims 17-30 under 35 U.S.C. § 103(a) as being unpatentable over either one of Ulland et al. or Chan. The Examiner asserts that

Both of these references describe, teach and suggest the basic requirements of the instant invention as claimed [O]ne of ordinary skill would have found it prima facie obvious to perform a scanning light exposure with these types of exposure devices as set forth in the Ulland et al. and Chan references, absent objective evidence of high probative values to the contrary.

(Office Action, at pages 2-3). Applicant respectfully traverses the rejection.

Applicant's invention as claimed is to provide a substrate exposure to transfer a pattern to a photoresist on a surface of a substrate. The method provides a scan light

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source, which has several point light sources and are located over the photoresist to be exposed on a substrate, and a control system, which converts the scan light source or the substrate to shift along a scan path and converts the pattern into a timing signal so as to control the light and dark status of the scan light source at different times. Furthermore, Applicant's invention as claimed is to provide a method to enhance the resolution of the pattern transferred to the photoresist. For example, the scan light sources can be arranged with at least one line light source having an axis vertical or non-vertical to the scan direction to enhance the exposure resolution.

Ulland et al., as Examiner stated, does not disclose "a 'scan' type of exposure [] within the metes and bounds of [the] document[]" (Office Action, page 3). Further, unlike Applicant's invention as claimed wherein, for example, the scan light sources can be arranged with at least one line light source having an axis non-vertical to the scan direction, Ulland et al. does not teach or even suggest such an approach with substantial significance to enhance the exposure resolution. Rather, Ulland et al. is primarily directed to provide a method with "a moving platform that is capable of being positioned at multiple places over the substrate," which allows light source array to "travel[] over the substrate until all desired portions have been exposed" (paragraph [0043], lines 5-9).

Apparently, comparing to Applicant's invention as claimed, Ulland et al. does not address an important purpose and thus does not have the advantage of enhancing the exposure resolution, and does not disclose an important element of non-vertical arrangement of the scan light sources with respect to the scan direction. The disclosure

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of Ulland et al. is so different from Applicant's invention that one of ordinary skill at the time to the invention would not have been motivated to perform a scanning light exposure even with types of exposure devices as set forth in the Ulland et al.

Chan, also as Examiner stated, does not disclose "a 'scan' type of exposure [] within the metes and bounds of [the] document[]" (Office Action, page 3). Further, Chan is directed a method to a substantially different direction. As mentioned in the foregoing, Applicant's invention as claimed is directed to provide a substrate exposure method with a scan light source and a control system, wherein the scanning process and the enhancement of the exposure resolution are achieved significantly by controlling the relative motion of the scan light source and the photoresist. Chan, however, is directed to provide a rather different approach, wherein a pixel panel is positioned between the light source and the subject to be exposed or a lens system (Fig. 1). "[The] light source projects light pulses at the pixel panel," and the pixel panel is "selectively controlled to direct light onto or away from the subject" (Abstract; paragraph [0018], lines 11-12).

Apparently, Chan addresses elements which are significantly different from that in Applicant's claimed invention, such that a one of ordinary skill in the art would not have motivated to move naturally toward the invention, using the teach in Chan as a starting point.

As discussed in the foregoing section, it is clear that the methods recited in claims of Applicant's invention are not within the scope of those disclosed by either one of Ulland et al. or Chan. In other words, even with the types of exposure devices as

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provided in Ulland et al. or Chan, one of ordinary skills in the art would not have been found it prima facie obvious to utilize these devices in a scanning manner.

Therefore, claims 17-41 as amended are not obvious over either one of Ulland et al. or Chan. Accordingly, for at least the foregoing reasons, Applicant respectfully submits that the grounds of rejection have been addressed and the rejections are overcome. Reconsideration and withdrawal of the rejection are respectfully requested.

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CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 17-41 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Date :

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Respectfully submitted,

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